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REMARKS

In the Office Action, claims 1, 2, 4, 5, and 8 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,449,381 to Imran in view of U.S. Patent No. 5,893,885 to Webster, Jr.

In the Office Action, claims 1-5, 8, 15-17, 19, and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,321,102 to Spehr et al. in view of U.S. Patent No. 5,893,885 to Webster, Jr.

In the Office Action, claims 5, 6, 17, and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,449,381 to Imran in view of U.S. Patent No. 5,893,885 to Webster, Jr. as applied to claim 4 in further view of U.S. Patent No. 5,935,159 to Cross, Jr.

In the Office Action, claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,449,381 to Imran in view of U.S. Patent No. 5,769,077 to Lindegren.

In the Office Action, claims 7-14 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,796,044 to Cobian et al. in view of U.S. Patent No. 5,769,077 to Lindegren.

In response thereto, claim 14 has been cancelled and claims 1, 9, and 15 have been amended. Accordingly, claims 1-13 and 15-20 are now pending.

Independent Claim 1

Claim 1 recites a lead comprising a lead body defining at least one longitudinally-extending lumen and a plurality of individual electrical conductors contained in the lumen of the lead body and extending between the proximal and distal ends. The plurality of individual conductors share a common insulating coating that insulates the plurality of individual conductors from each other, and each of the plurality of individual conductors comprise a same electrically conductive material.

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The Imran reference discloses an endocardial catheter. In the embodiment illustrated in Figure 2, the endocardial catheter has a tubular element (12) with multiple lumens (16, 17, and 18). Electrical conductors (42, 47, 68, and 69) are provided in the lumens. Each of the electrical leads are electrically insulated from each other with an insulating coating.

It is apparently conceded that the Imran reference does not disclose or suggest the plurality of individual conductors sharing a common insulating coating that insulates the plurality of individual conductors from each other. For this reason, it appears the Examiner has introduced the Webster, Jr. reference. The Webster, Jr. reference discloses a multi-electrode ablation catheter having a plurality of gold alloy electrodes mounted on the tip section. Each electrode is electrically connected to a switching unit by leads comprising paired copper and constantan wires. The switching unit enables an operator to switch between a first mode for monitoring ECG and a second mode for delivering RF energy for tissue ablation to a selected electrode and monitoring the temperature of the electrode. The copper wire of the lead delivers RF energy and the copper wire and constantan wires combine to form a thermocouple for temperature monitoring.

The Webster, Jr. reference does not disclose each of the plurality of individual conductors comprising a same electrically conductive material. The Webster, Jr. reference discloses leads (36) comprising two wires enameled together. The first wire (37) is copper and the second wire (38) is constantan (see column 4, lines 11-21). The constantan wire, which has high strength, supports the soft and fragile copper wire. This allows the catheter to have up to ten or more electrodes each individually connected with up to ten or more leads. Because the leads are constructed from two different types of wire, the leads also serve as a thermocouple for measuring the temperature at the electrode. As such, the Webster, Jr. reference teaches away from implementing a plurality of individual conductors comprising the same electrically conductive material.

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The Spehr et al. reference discloses a cardiac lead. In the embodiment illustrated in Figure 2, the cardiac lead has noncoiled conductor cables (25a, 25b) surrounded by a coextensive insulating sleeve (26). Each conductor cable consists of a conducting element (27) covered by a coextensive insulating sleeve (29). The conducting element may be a single filament wire or a plurality of individual conductor wires. It is also apparently conceded that the Spehr et al. reference does not disclose or suggest the plurality of individual conductors sharing a common insulating coating that insulates the plurality of individual conductors from each other. It is for this same reason that the Examiner has introduced the Webster, Jr. reference. As stated previously, the Webster, Jr. reference does not disclose or suggest a structure having 1) a plurality of individual conductors sharing a common insulating coating that insulates the plurality of individual conductors from each other, and 2) each of the plurality of individual conductors comprising the same electrically conductive material.

The Cross, Jr. et al. reference discloses implantable leads. In the embodiment illustrated in Figure 3, the implantable lead comprises a longitudinally extending core section (102) provided with longitudinally extending grooves in which the conductors (104, 106, 108, and 110) are located. An outer tubular member (100) encases the core and conductors. Each of the conductors has an outer insulative sheath (112, 114, 116, and 118) which electrically isolates the conductors from each other. Nowhere does the Cross, Jr. et al. reference disclose or suggest a structure having 1) a plurality of individual conductors sharing a common insulating coating that insulates the plurality of individual conductors from each other, and 2) each of the individual conductors comprising the same electrically conductive material. In the Cross, Jr. et al. reference, each conductor is provided with its own insulative sheath.

The Lindegren reference discloses an implantable cable device. In the various embodiments, the implantable cable device has multiple insulated electrical conductors (8, 10, 12, 14, 16, 18, 20, and 22). In other words, each electrical conductor is provided with an individual insulative sheath such that the electrical conductors are

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electrically insulated from each other. Nowhere does the Lindegren reference disclose or suggest a structure comprising 1) a plurality of individual conductors sharing a common insulating coating that insulates the plurality of individual conductors from each other, and 2) each of the individual conductors comprising the same electrically conductive material. In the Lindegren reference, each conductor has its own insulative sheath.

The Cobian et al. reference discloses a biomedical lead conductor body formed of a coiled wire conductor that is sheathed loosely within a coiled insulative sheath of biocompatible and biostable material allowing a gap or space to be present between the exterior surface of the coiled wire conductor and the adjacent interior surface of the insulative sheath. The embodiment illustrated in Figure 6 discloses a plurality of conductors (32') which are electrically coupled, and the plurality of conductors are surrounded by a coiled insulative sheath (42) in a manner that a gap/space (40) exists between the coiled insulative sheath and plurality of conductors. Nowhere does the Cobian et al. reference disclose or suggest a structure comprising 1) a plurality of individual conductors sharing a common insulating coating that insulates the plurality of individual conductors from each other, and 2) each of the individual conductors comprising the same electrically conductive material. In the Cobian et al. reference, the coiled insulative sheath does not electrically insulate the plurality of conductors from each other.

Accordingly, it is respectfully submitted that claim 1 is in condition for allowance.

Dependent Claims 2-8

Claims 2-8 depend from claim 1 and are similarly patentable. Accordingly, it is respectfully submitted that these claims are in condition for allowance.

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Independent Claim 9

Claim 9 recites a lead comprising a lead body defining at least one longitudinally-extending lumen and a plurality of individual electrical conductors contained in the lumen of the lead body and extending between the proximal and distal ends (see exemplary embodiment illustrated in Figures 4 and 5). The plurality of individual conductors share a common insulating coating that insulates the plurality of individual conductors from each other, and the plurality of electrical conductors and the common insulating coating comprise a conductor assembly. The conductor assembly has a helical configuration defining a longitudinally-extending passageway for receiving a stylet or guide wire for placing the distal end of the lead.

The Imran, Webster, Jr., Spehr et al., Cross, Jr. et al., and Lindegren reference do not disclose or suggest a conductor assembly having a helical (coiled) configuration. These references are directed to noncoiled electrical conductors. The Cobian et al. reference discloses a coiled electrical conductor comprising a plurality of electrical conductors (32') surrounded by a coiled insulative sheath (42) such that a gap/space (40) exists between the plurality of electrical conductors and coiled insulative sheath. However, the coiled insulative sheath is not a common insulating coating that insulates the plurality of electrical conductors from each other. In the Cobian et al. reference, the plurality of electrical conductors are electrically coupled.

Accordingly, it is respectfully submitted that claim 9 is in condition for allowance.

Dependent Claims 10-13

Claims 10-13 depend from claim 9 and are similarly patentable. Accordingly, it is respectfully submitted that these claims are in condition for allowance.

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Independent Claim 15

Claim 15 recites a lead comprising an electrical conductor assembly comprising at least two electrical multifilar cable conductors sharing a common insulating coating. The common insulating coating insulates the at least two electrical cable conductors from each other. The electrical cable conductors connect at least one of the contact on the electrical connector with at least one of the electrodes, and the at least two electrical cable conductors comprise a same electrically conductive material.

For at least the same reasons discussed above with regards to claim 1, it is respectfully submitted that claim 15 is in condition for allowance.

Dependent Claims 16-20

Claims 16-20 depend from claim 15 and are similarly patentable. Accordingly, it is respectfully submitted that these claims are in condition for allowance.

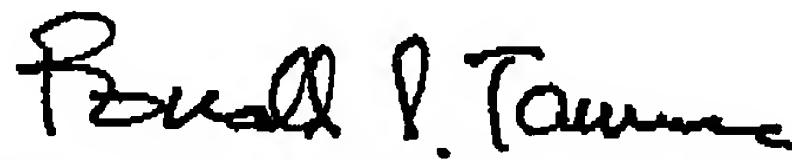
CONCLUSION

In light of the above claim amendments and remarks, it is respectfully submitted that the application is in condition for allowance, and an early notice of allowance is requested.

Respectfully submitted,

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Date



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